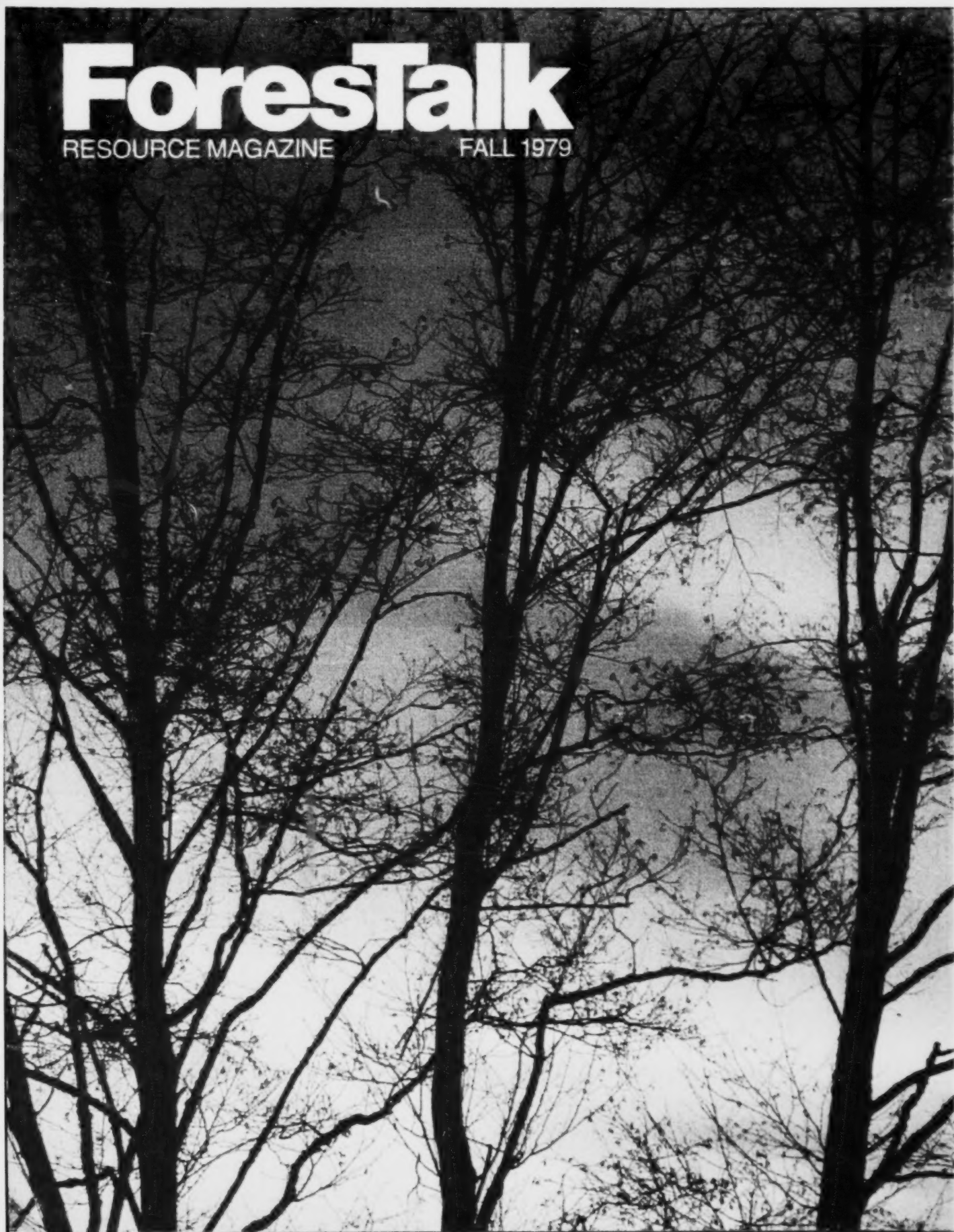


ForeTalk

RESOURCE MAGAZINE

FALL 1979



ForeTalk

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In one of the articles in this issue of ForeTalk a UBC forest ecologist points out that a forest environment is considerably more complicated to manage than is a moon rocket. We should therefore acknowledge the successes our foresters have achieved, he says, in dealing with such a complex management system.

All in all, the central theme running through this issue is the confirmation of a most important point: from truck loggers to protection officials, from fallers to foresters, the quality of forest management and forest harvesting in B.C. ultimately depends on the ability of the people who work in and around our forests.

Tom Waterland

Hon. Tom Waterland, Minister of Forests



Province of
British Columbia

Ministry of
Forests



Fall is a time of change. The days become shorter, the nights cooler, and throughout the province trees explode in a blaze of colour. Then many of these trees lose their leaves, exposing skeletal frames to the uncertainty of winter. Vancouver photographer Bob Herger captures this last sombre stage of fall in this issue's cover photograph.

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A Match-up With Nature

The Ministry's Protection Branch is determined to protect our forests from fire, insects and disease so forest planning can proceed on schedule. That means matching these natural liquidators move for move.
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Gone are the days of the double-bitted axe and the cross-cut saw. Today's woods workers inhabit an increasingly mechanized environment, but it still takes people to turn the wheels of the forest industry.
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Most of the leading figures involved in making or influencing forest planning decisions in B.C. get together to share notes. Find out what's on their minds.
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Fall sweeps into the province from east to west, leaving in its wake a kaleidoscope of colour.
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Forest Habitat The Raccoon

Omnivorous, nocturnal, cagey and a mean fisherman, the raccoon is one animal who fits right into a man-altered environment.
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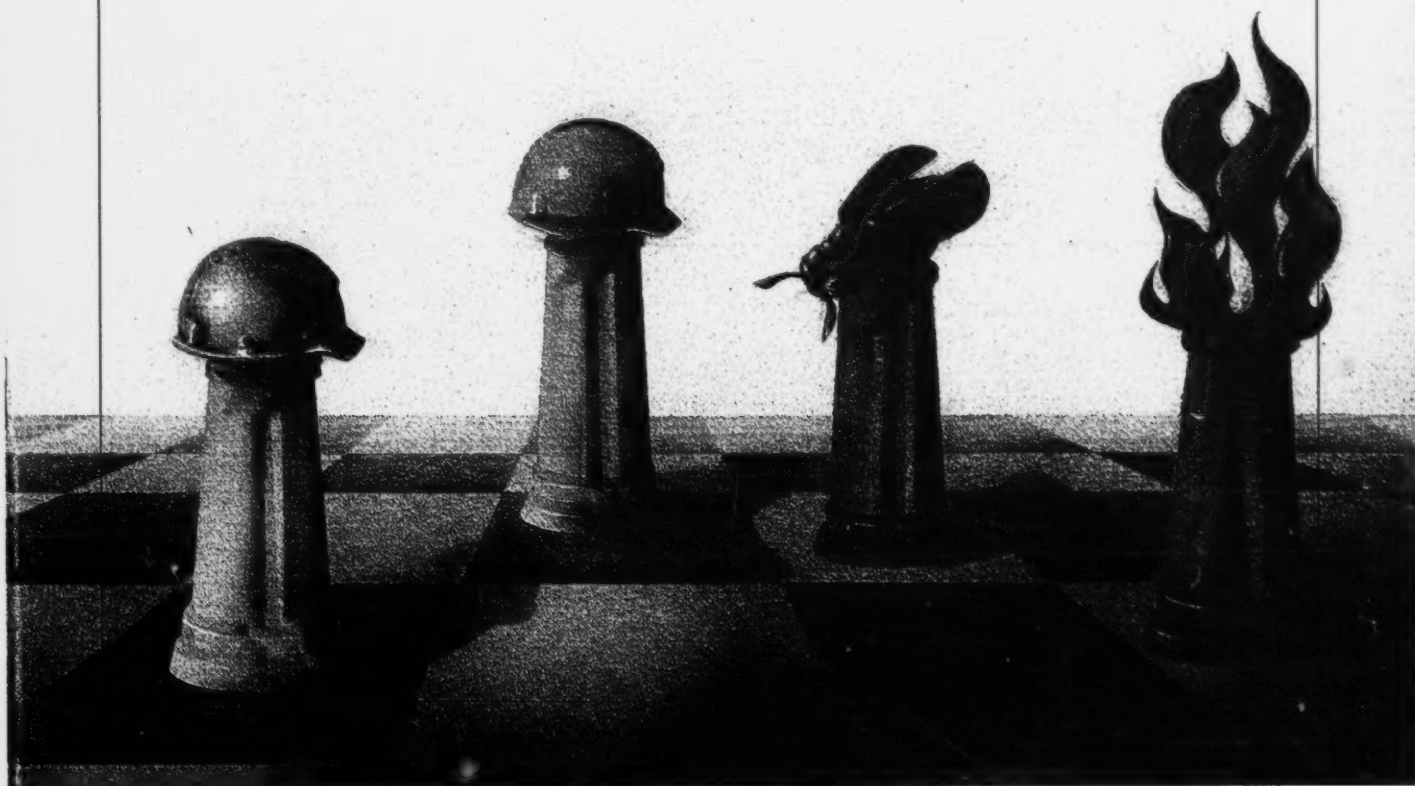
A MATCH-UP

WITH NATURE

by Grant Ellis

The natural liquidators of an aging forest are fire, insects, disease and parasitic plants. Every move they make is designed to destroy mature trees to make room for new growth. These natural recyclers of the forests, whose moves are unplanned, are often deadly and undetectable.

On the other hand, the Ministry of Forests Protection Branch is determined to preserve the trees so forest managers can plan and carry out long-range timber harvesting and reforestation programs. As intensive forestry seeks to grow better-quality trees more quickly, protecting this valuable resource is now more important and more complex than ever before. The Protection Branch must be able to match nature move for move.





The intense heat of summer lightning explodes an ancient fir, scattering firebrands to the wind.

Russet needles and seasoned branches of fir, left by loggers thinning a second-growth stand, lie drying in the sun — fuel for a potential holocaust.

A mountain pine beetle rides on the breeze to its new home — a mature lodgepole pine.

The job of protecting our forests against these and other dangers, such as the quieter but more deadly mistletoe and rot, belongs mainly to the Ministry of Forests Protection Branch. And the job grows more important by the day.

As one Branch official puts it: "We

That is why research and hard field experience are being combined to find new and better ways to protect the forests.

A winter ago, four men stepped from a helicopter in the deep snow country east of Burns Lake. Together they tramped the hillside high above Henrietta Creek in search of an insect: the spruce bark beetle.

Timber cruisers had reported symptoms of the beetle's attack. Spruce trunks were tell-tale red, apparently scaled of their mature bark by woodpeckers in search of the beetle's grubs. The reports, it well-founded, could prove serious. A beetle infestation could force major changes in forest management and logging plans. That is why, on that February day, the zone forester and two staff members of the nearby ranger station waded through the snow along with pest management officer Clem Moore. They leaned back to stare at spruce trunks; they dug into the bark and pulled out chunks; they rubbed the debris in their hands; they consulted. Hours passed, but there was still no sign of the beetle.

"We knew that there was already an infestation at creek-bottom," says Moore. "but the report of symptoms higher up was disturbing. So we choppered in and wandered that hillside all day. But we couldn't find a thing."

It was a diversionary move in the match-up with nature; a bark mite, not the bark beetle, had attracted woodpeckers to the big spruce trees. The beetle scare turned out to be a case of mistaken identity.

The four-man inspection team headed for the helicopter pad, weary but relieved. The forest can live with a few bark mites. But the experience made two significant points. Pests are not well understood, and their effects on the forest are major enough to attract the immediate attention of the Ministry of Forests.

The combined attacks of mistletoe, insects, rot, and decay destroys over 16 million cubic metres of timber every year. Decay alone is responsible for fully one-half of this destruction. By comparison, fire consumes an average of just under 3 million cubic metres of timber annually. To put these figures into perspective, forest liquidators as a whole destroy a vol-



Even with the newest technology, forest protection is not a simple, cut-and-dried operation. Make a move to intervene in nature and nature makes a counter move of her own. Whether it is a killing attack by bark beetles such as the spruce bark beetle (top), a severe reduction in tree growth caused by the parasitic mistletoe (centre), or the destruction of trees by defoliators such as the notorious spruce budworm or the larva of the polyphemus moth (bottom), the actions of these natural forest liquidators must be constantly monitored and controlled.

got the first growth for free — it was just standing there when we arrived. The second growth represents an investment. We are not just protecting trees anymore, we're also protecting the time and money it takes to plant and tend the next crop."

Even with the newest technology, forest protection is not a simple, cut-and-dried operation. Make a move to intervene in nature and nature makes a counter-move of her own. Take the case of fire. Fighting fire can be a gut-wrenching job — frantic, sweaty, and often dangerous. But it is also a job requiring difficult decisions.

Close a forest and you protect it from man-caused fire, but you affect jobs, livelihood, and recreation. Control a fire and you save trees, but you postpone regeneration, prevent some species of trees from propagating, and create a paradise for pests. Burn slash and you eliminate a deadly fire hazard; but you risk complaints about smoke and danger. The solutions to these problems are never absolute.

ume of trees equal to almost one quarter of the province's annual allowable cut. Obviously, the Ministry's success in managing these problems will affect the success of intensive forestry and second-growth forest management, and this contest with nature is being waged on a number of fronts.

Mistletoe, for all its romantic connotations, is an insidious plant to foresters — an intruder; a parasite. It roots into a tree, drawing nourishment from it but not quite killing it, instead reducing tree growth, sometimes very severely. In so doing, mistletoe robs the forest of 4.25 million cubic metres of timber each year. You have to kill mistletoe to control it: cut down the tree, and the mistletoe dies. The Ministry's objective is to remove all infected trees in or around a logged area to prevent infection of new growth. Infected trees in immature stands are sometimes thinned out, and wherever possible, mistletoe-resistant species are planted where infected trees once stood.

Leaf-eaters or defoliators such as the western spruce budworm can often be controlled with insecticides, but the Protection Branch prefers not to spray pests if other control methods can be used. Before undertaking a spraying program, the Branch will often wait for a year or two to see if the insect population will collapse naturally. Public resistance to the use of insecticides is strong, even in remote areas, and aerial spraying of chemical insecticides or pesticides has become a controversial issue in B.C.

An alternative to chemical control or defoliators is biological control — intervention in the life cycle of the pests. In a joint experiment last year, the Canadian Forestry Service and the Ministry of Forests made an air drop of water-borne viruses known to affect the spruce budworm. The results, although inconclusive, were promising, and research will continue. The feeling at the Protection Branch is that the CFS, given enough time and money, will be able to isolate an effective virus for the task. At the same time, in one of those unexpected, chess-style moves, spruce budworm populations unexpectedly decreased during 1978.

Bark beetles pose an entirely different problem. They cannot be controlled by sprays or solutions on a large scale because their home is beneath the bark of the tree. The mountain pine beetle specializes in lodgepole



In the match-up with forest insects, special techniques have to be developed to deal with special problems. In the Prince George area, for example, bumper crops of valuable spruce seed cones (in great demand for expanding reforestation programs) are being destroyed by cone borers and seed worms. The counter move in this case is to spray the insects during the critical period when the cones are open for pollination, as this is the time when the insects lay their eggs inside the cones.

This summer a joint Ministry of Forests and Canadian Forestry Service experimental program tested the effectiveness of spraying the crowns of selected spruce trees containing a good crop of seed cones, but without spraying the whole forest. The experiment may well turn out to be the key to the success of future spruce reforestation projects.



When a forest fire is reported everything moves into high gear. As tankers drop their red retardant, men armed with axes, chainsaws, and ground crew start to cut the break. This match-up with fire, as with all other forest regulators, is a never-ending contest. The health of the timberland rests on the im-

ping and management of these through-out B.C. wherever the two species are found in recent times the beetle's activity has been particularly evident in the Kootenays, particularly in the Elk, White, and Flathead river drainage. Although the beetle's damage to timber land are presently under attack, as well the spruce bark beetle's spread in over mature spruce stands in the north-west, Hinton, and Skeena Lake areas.

Since the beetle's can be matched with spruce, the Ministry is taking the only other possible action attempting to reduce the insect population and save the remaining stands by salvage or sanitation logging. These treatments may call for cutting down or isolating from a group of trees, or even the removal of logging or a selected but still profitable timber. In extreme cases, prescribed burning may be the only answer.

Prescribed burning, however, is the enemy of the beetle, as it is another mortal enemy of timber, a soil fungus that attacks healthy trees, turning them down to the ground by its own means.

On the soil, the beetles feed on roots, new growth, and stems. They move on, and its damage attack kills spruce, fir, and species of larch, then making all stumps and planting a disastrous agency could be the problem. But even the radiation of these beetles to the forest is not. Although the numbers have been dropping, they are not a fast 40 years, they have not to come the path of a timber stand in the modern forest region.

There are many other forest parasites and diseases adversely affecting B.C. forests besides the ones mentioned here, and the Protection Branch has its work cut out for it trying to keep these forest killers under control. At the same time, the Branch has its ongoing battle going on against the forests, other traditional enemies.

Over 80 per cent of the Ministry's protection program this year will go into the prevention, detection, and suppression of fires. When fighting fires may always

Over the years perhaps the most visible, most controversial and least understood side of fire prevention has been fuels management. But the selective use of prescribed fire today plays an increasingly important part in forest, range and resource management.

By the turn of the century, logging debris was recognized as a menace that should be controlled. Although an early amendment to the Forest Act gave the government limited authority to order the burning of debris, large and destructive forest fires originating in logging slash continued to occur. By 1938, further legislation gave the Forest Service increased powers to order the disposal of this potentially dangerous debris; too late, however, to save the Sayward Forest on central Vancouver Island. That year, 75,000 acres went up in smoke, darkening the skies as far away as Portland.

The Sayward fire (also known as the Campbell River fire) is usually considered the turning point in the history of slash disposal in British Columbia. From 1938 onwards, the burning of slash to avoid uncontrollable, major forest fires developed into a standard forest



management tool. In recent years the use of fire, applied selectively and in accordance with ecological requirements, has been extended to meet a variety of resource management objectives.

But prescribed burning brings its own problems — a point dramatically highlighted by the Eden fire near Salmon Arm in September of 1973. Accumulated, unburned slash from selective logging dating back over 20 years provided the fire with an opportunity to spread rapidly after mop-up operations on the main fire failed. Before it was brought under control the fire burned a number of

homes and other buildings as well as a large area of forest land.

Fortunately there was no loss of life, but the contentious matter of slash burning again became a subject of controversy, giving further impetus to the Ministry's program of using prescribed fire only in accordance with the ecological requirements of each site to be treated.

Using this basic approach, the Ministry applies controlled, prescribed fire only to those sites that have always depended on natural fire for plant succession. On sites that do not include fire in their ecological structure, forest fuels and logging debris are handled in other ways. Over the past decade the amount of slash being broadcast-burned has continued to decrease until today, no more than 13 per cent of all logged areas is treated in this way. Other sites receive treatments keyed to particular ecological needs required to prepare the ground for the next forest crop. The Ministry, in cooperation with the Fish and Wildlife Branch, also uses prescribed fire to improve wildlife habitat.

It may seem simplistic, but the proverbial fighting of fire with fire is still one of the most effective forest protection measures.



When a forest fire is reported everything moves into high gear. Air tankers drop their red retardant; men rappel their way down from hovering helicopters; bulldozers and ground crews race to cut fire breaks. This match-up with fire, as with all other forest liquidators, is a never-ending contest. The health of B.C.'s timberland is on the line.

pine and is an active threat throughout B.C. wherever this tree species is found. In recent times the beetle's activity has been most devastating in the Kootenays, particularly in the Elk, White and Flathead river drainages. At least 70,000 hectares of B.C. timberland are presently under attack. As well, the spruce bark beetle is spreading over mature spruce stands in the Smithers, Huston and Summit Lake areas.

Since the beetles can't be reached with sprays the Ministry is taking the only other possible action: attempting to reduce the insect population and save the remaining stands by salvage or sanitation logging. These treatments may call for cutting down an isolated tree, a group of trees, or even the clearcut logging of infested but still merchantable timber. In extreme cases, prescribed burning may be the only answer.

Phellinus (Porcia) weirii, better known as root rot, is another mortal enemy of timber, a soil fungus that attacks healthy roots, causing blow-downs or internal decay. It can remain

in the soil for decades, ready to infest new growth. *Phellinus (Porcia) weirii* and its cousins attack only specific tree species. In theory, then, pulling all stumps and planting a different species could solve the problem, but even this radical approach may not be the final answer. Although researchers have been studying root rot for at least 40 years, they have yet to come up with a definitive control for this most destructive fungus.

There are many other insects, parasites and diseases adversely affecting B.C.'s forests besides the ones mentioned here, and the Protection Branch has its work cut out for it trying to keep these forest killers under control. At the same time, the Branch has to continue matching wits against the forests' other traditional enemy — fire.

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been a major part of the Ministry of Forests' forest management responsibilities, methods used have changed dramatically over the years.

"It isn't all that long ago that we still used pack horses and did most of the travel in the woods on foot," says Arnold Ginnever, chief of the Protection Branch's forest protection program. "I was stationed at the Hope ranger station 22 years ago, and I remember spotting smoke across the river, up a canyon. There was only one plane in the district, and if it wasn't nearby, there was no point in asking for it. So two of us left with a crew of 24 men.

"We had to row across the Fraser River. But the water was too rough right there, so we had to walk upstream a couple of miles to find a smoother spot. Then we rowed across to the east side in shifts. We walked about three miles along the CNR tracks — and half a mile of that was tunnel, with no way to know if a train was coming — until we got to Siwash Creek. Then we tramped twelve miles up a mining road along the creek.

"We didn't fight that fire very long. I flew over it later — it was out of control. We had to go away and let it burn.

"But that was the way we worked. We'd see a puff of smoke and hike 20 miles to check it out."

Today, the Protection Branch prefers to be prepared in advance for possible fires, to stay a step ahead of nature. As such, it maintains a provincial fire atlas on which every fire since 1940 has been plotted. In addition, research continues on the development of a computer-based fire-prediction model which will be used to plan daily fire control activities.

On the other hand, the number of old familiar fire lookout towers has been reduced from 165 to 100, as records show that in some areas towers have not been serving a useful function. In other areas towers are backed up by air patrols, a technique the Forest Service pioneered in 1918. To these the Branch is now adding such innovations as lightning counters — strategically located electronic devices which record lightning flashes. Another new device, now under investigation, accurately plots the location of all cloud-to-ground lightning strikes. Data gathered by this system will be used by the fire-prediction model to help forecast fire starts for the day.

Infrared heat scanners, which detect the infra-red energy transmitted by combustion, are widely used to find new and smoldering fires.

Whatever its source, a fire report usually involves the Initial Attack Program, designed to control every fire by 10:00 am of the following day. This program has been 86 per cent effective over the past decade, and the average fire size has shrunk from 80 hectares to 33 hectares.

In 1978, a bad year by all standards, 1,367 fires broke out between July 15



and August 15 — 572 on one weekend alone. Still, the Ministry controlled 81 per cent of all fires by the next morning. But fighting fire is an expensive proposition: last year's cost was \$11 million.

According to Arnold Ginnever, the Protection Branch still isn't satisfied. "We're working on a fire management program," he says. "We have everything from desert to rainforest in B.C. Our plan is to gather all the knowledge we have about trees, climate, and terrain and make as many preparations as we can in advance. We'll have a specific plan of action for every area, with provision for slight adjustments if need be. But there's still no substitute for the knowledge and experience of the rangers. The plan is there to help them react more effectively when an emergency occurs."

With the health of our timberlands and the success of the Ministry's intensive forest management program on the line, the match-up with all natural forest liquidators will continue in dead earnest. And the stakes are growing every year. **E**

Fire is not the most destructive forest liquidator, but it is often the most feared. The Protection Branch of the Ministry of Forests uses a variety of means to detect and fight fires, including electronic lightning counters and a highly efficient Initial Attack Program. But the Ministry prefers to be prepared in advance for possible fires, to stay a step ahead of nature. As such, it is currently developing a computer-based fire-prediction model which will be used to plan for daily fire control activities.

Forest destruction by percentages



Collections

Do you know any interesting facts about forests? Don't hold them back. Collections deals with anything from machinery to forest products and uses, from unusual facts and interesting people to forest legends. We invite you to contribute. Mail submissions to: ForesTalk — Collections, Information Services Branch, Ministry of Forests, 1450 Government St., Victoria, B.C. V8W 3E7. Information should be brief, accurate, and sources included where possible.

Throwing The Axe

In this loggers' sport, an axe is thrown from a distance of six metres at a wood target. Contestants have three throws at the target and the person with the highest score, of course, wins.

Throwers always use a double-bitted axe. They may put a hole in it, or round off the handle (which is usually made of oak) for decorative purposes.

The highest possible score is 15 points (three bulls-eyes). This has been achieved by a number of B.C. axe throwers — it's rare but not impossible. Henry Gauvin from Kokish, B.C. (north Vancouver Island) and Hugh MacKenzie (now in his fifties) are well-known champions.



Alder Natives

Seven species of alder are native to Canada. The Sitka alder is the most common in B.C., where it often grows on marsh flats and along streams together with willows and balsam poplar. It has a slender, often crooked trunk and may grow as high as eight to twelve metres.

Alder is used in B.C. for firewood, as a 'smoke' wood for food, and in the making of furniture. Traditionally it was used on the west coast to dye cedar bark red and to make a purgative tea; the Bella Coola Indians used alder to make masks and the wood was also used in spoon making since, unlike cedar, it does not impart a taste to food. Other past uses include the manufacture of artificial limbs and the manufacture of charcoal for gunpowder.

So far, B.C. seems to have escaped the attentions of *scolytus*, the beetle which carries the Dutch Elm fungus and has caused such devastation in Europe during recent years. The disease has been found, in Washington State, however, and the Ministry of Forests is currently conducting tests to find out if the *multi-striatus* vector of the fungus has begun an invasion of this province. Fifty traps, consisting of a sticky material and a chemical to attract the beetle, have been obtained from Ohio. These traps have been distributed in the Victoria, Vancouver, north and south Kamloops and east and west Nelson regions. Even if the insect is found in B.C., it may not be carrying the fungus, which appears to have first arrived in Canada by boat from Europe.

Multi-Striatus Vector Invades!

The Vegetable Trees



The Cauliflower tree, located on a Christmas tree farm and standing far higher than any of the surrounding trees, is a locally famous oddity in the B.C. interior near the highway between Golden and Invermere. A fully grown Douglas fir about 100 years old, it has a crown resembling a giant cauliflower. No one really knows why this growth developed, though it might be an extreme example of the effects of mistletoe.



Cabbage is said to have been one of Napoleon's least favourite vegetables. He must have been horrified, upon arriving in St. Helena for his final exile, to find himself surrounded by the final irony: hundreds of cabbage trees, which still proliferate today. They grow in patches 800 metres above sea level on this mountainous Atlantic island and occur in various forms — none of which, however, is a

real cabbage. In fact the cabbage tree is a form of daisy. The black cabbage tree attains a height of six metres and is a handsome spreading tree, covered in lichen. There are also the oddly-named He-cabbage and She-cabbage trees, the former clumpy like a cauliflower, and the latter purplish like a red garden cabbage.



The Boojum tree which grows in Baja, California, is often likened to an upside-down carrot. Its maximum diameter at the base is as much as 90 centimetres and it ranges upwards as a slim pole sometimes higher than 20 metres. The trunk and branches are covered with short, thorny, leafless branchlets at the tips of which appear in season small yellowish-white flowers. Most of the trees grow straight up, single spired. A few of them, high up, suddenly decide to have two or three branches extend straight up or at fantastic angles; or the whole tree may arch clear over, put its top in the ground and take root.

How Old Are Yew

A Yew tree at Fortingal, Scotland (where Pontius Pilate was said to have been born) is over 3000 years old, the oldest living vegetation in Europe. It split several hundred years ago and by the mid 1800s you could drive a carriage between the two halves. It is now fenced in the village churchyard.

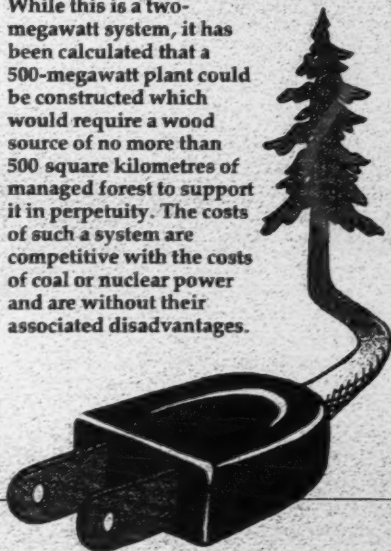
It is very difficult to prove the age of yew trees. Because of their multiple trunks the counting of annual rings is impossible, but legend and historical references often bear out the rough estimates made of the age of such trees.

This Will Kindle Your Interest

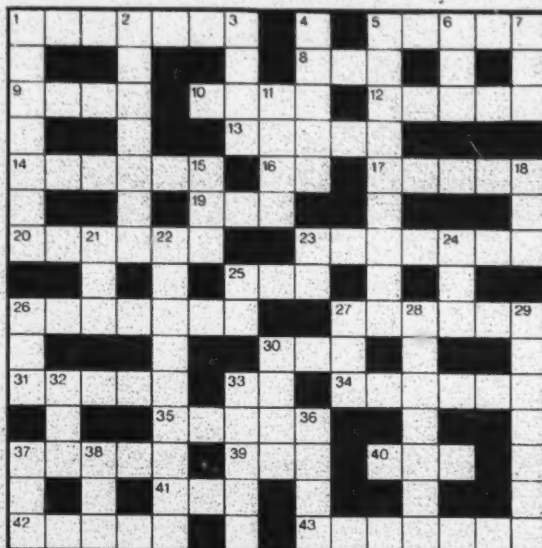
Of the 2,500 million cubic metres of wood used each year throughout the world, 46 per cent is burned as fuel within a few kilometres of the site of felling. While this certainly saves a lot of transportation problems, it also means that 1,150 million cubic metres of wood are used each year as fuel.

Burning wood gathered from unmanaged forests is not a very efficient way to produce energy, however, and recent advances in forest growing and harvesting techniques have supported the development of alternative methods of deriving energy from wood. Electricity generated from turbines powered by wood gas is one such example. A pilot project in France based on this principle has been in place for several years.

While this is a two-megawatt system, it has been calculated that a 500-megawatt plant could be constructed which would require a wood source of no more than 500 square kilometres of managed forest to support it in perpetuity. The costs of such a system are competitive with the costs of coal or nuclear power and are without their associated disadvantages.



CROSSWORD: Philip Linfield



ForestTalkCrossword

ACROSS

- 1 An evergreen tree (not what Socrates took) (7)
- 5 You would walk around a tree to measure it (5)
- 8 In salmon it's not exactly caviar (3)
- 9 To be excited and prepared to get on the move (4)
- 10 A West African tree that contributes to a popular drink, even while prices go up (4)
- 12 Setting young trees out on a long narrow crest of excavated soil is called planting (5)
- 13 Before the Indians make this, they carry the trees (5)
- 14 The act of cutting wood (6)
- 16 Suffix often appearing in names of plants and animals (2)
- 17 Native people of the northlands (5)
- 19 Salmon (3)
- 20 Fellers use these to widen the aperture of a cut in a tree (6)
- 23 Mass of ferns and undergrowth (7)
- 25 Part of a circumference (3)
- 26 Laminated sheets of wood used much in construction (7)
- 27 Fences of bushes or small trees (6)
- 30 B. C. institution of study (3)
- 31 Tan coloured (5)
- 33 Father, or public address system (2)
- 34 Large-billed tropical bird who lives off tree-nuts, or only play (6)
- 35 Long straight piece of wood, once used as a symbol of office, or for support (5)
- 37 Piece of wood bolted in place to attach rope to (5)
- 39 Province with little or no forest industry (3)
- 40 A large deer-like animal (3)
- 41 If forest resources were used unwisely and dwindled, then many would have to out a living (3)
- 42 To make a clean sweep of it, you need a (5)
- 43 Term applied to the wearing of rock and loss of soil, that can take place when a region once covered in forest has been cleared and not reforested (7)

DOWN

- 1 The main saw in a sawmill, used in the initial cut of a log (7)
- 2 General term for cutting and removing trees for industrial use (7)
- 3 As the wooden actor said: "To be or to be?" (4)
- 4 Wooden box, usually large (5)
- 5 A seed must put forth shoots in order to become a tree (9)
- 6 A wooden pole, often spared (3)
- 7 The favorite tool of Santa Claus? (3)
- 11 Soil made particularly fertile with the inclusion of compost matter (4)
- 15 The Grizzly Valley beyond Dawson Creek is rich in natural reserves (3)
- 18 Large measures of weight, not metric (3)
- 21 Devoid of moisture (3)
- 22 The balance of nature in a specific region (9)
- 23 It's all around you (2)
- 24 Small staves are the main component of this (3)
- 25 What comes after B.C. (2)
- 26 It would be a pity to fall into one (3)
- 27 Modest wooden building (3)
- 28 A kind of fir tree (7)
- 29 You get this if you have too much tan (7)
- 30 Better this than sorry (4)
- 32 To be troubled, afflicted or ill is to (3)
- 33 Thin matter made of interlaced fibres of processed wood (5)
- 36 Most feared in the forest (4)
- 37 Young of certain animals (3)
- 38 An environmental abbreviation that reverberates all the way from 22 down (3)

Answers page 10

I have been receiving *ForesTalk* for a year or so now and was pleased to see the article on the Calypso orchid in the Spring 1979 issue. When I was growing up in the Kootenay Lake area in the southern interior of B.C. one of our May adventures was to hunt for "Lady Slippers" in the forests, and we were delighted if we found even one single flower!

Last May, while hiking in the same area with my children (who are young adults now), we came upon a large area where dozens of this species were growing, and in clusters of six or more. I was overwhelmed to see so many of these lovely tiny flowers, and really feel that in this area the Calypso orchid isn't as endangered as it once was. While discussing the *ForesTalk* article with a friend recently, she informed me of another area in the Kootenays where the Calypso blooms profusely. We are so pleased that the Calypso orchid is alive and well and surviving beautifully in the Kootenays.

Mrs. G.A. (Ivan) Brady
Castlegar, B.C.

In "Cashing In The Chips" in the Spring 1979 issue of *ForesTalk* you state that the Crown Zellerbach mill in Elk Falls will save 600,000 barrels of oil annually by converting to hog fuel as a source of energy. Are the oil saving figures correct? They do seem very high. For example, using your figure of 600,000 barrels a year one arrives at 1,643 barrels per day, 3,082 gallons per hour or 128 gallons per minute. If you are right, we could ease our national fuel shortage by closing down all the pulp mills. Is it possible the first figure should read gallons, not barrels?

H.V. Hopkins
Prince Rupert

The people at Crown Zellerbach double-checked the figures and confirm that the hog fuel fired boiler at Elk Falls, which will come on stream in January of 1980, will indeed save them 600,000 barrels of oil annually. They are replacing a 400-thousand-pound-of-steam oil fired boiler with a 400-thousand-pound-of-steam hog fuel fired boiler, and by comparing the amount of energy produced by each (measured in BTUs) they came up with the 600,000 barrel saving in oil. That breaks

MOVING?

Please let us know.

ForesTalk, Information Services Branch
Ministry of Forests, 1450 Government St.
Victoria, B.C. V8W 3E7

LETTERS

down to 63.49 barrels of oil per hour, or (figuring 35 imperial gallons per barrel) 2,222.15 gallons of oil saved per hour, or 37.04 gallons per minute. Clearly, large pulp mills require vast amounts of energy. By converting to hog fuel as a source of this energy the forest industry can greatly reduce the amount of oil it consumes each year.

I am a regular reader of *ForesTalk* and have become very interested in the new Forest Act. The Ministry of Forests now has complete jurisdiction over all lands within provincial forest reserves and yet is limited in activity to actual treed areas. As much of the land within forest reserves is not treed, an obvious conclusion makes one wonder just who will be looking after alpine wilderness areas. New logging roads are bringing more and more of our alpine meadows within the reach of trail bikes, four-wheel drives, snowmobiles, and all-terrain vehicles. In my area, several of the alpine meadows have already been permanently scarred by excessive vehicular use and have also been littered with oil cans, gasoline containers, plastic sheets, and so on. Obviously, measures must be taken to set aside and preserve some of our alpine wilderness areas in a natural state. I would appreciate a reply outlining just what efforts the Ministry of Forests is planning to undertake in the management and preservation of alpine wilderness areas.

John A. Carter
President, Shuswap Region
B.C. Wildlife Federation

The Ministry of Forests is responsible for the management of all Crown forest and range lands, not just provincial forests. This management responsibility includes not only management for timber, but for forage and recreation. The areas managed extend from valley bottoms to mountain tops.

On the question of alpine lands, it should be noted that approximately five million hectares (12.5 million acres) of provincial Crown land are currently set aside in provincial parks under the jurisdiction of the Ministry of Lands, Parks and Housing. These include recreation areas, wilderness parks and wilderness conservancies. Much of this land is alpine.

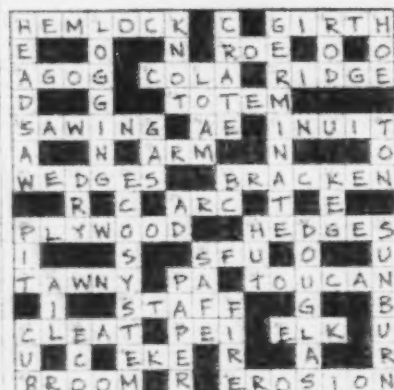
In addition, the Ministry of Forests, primarily under its recreation program, is responsible for the management of millions of hectares of alpine terrain. Most of these areas will not be damaged by man's activities even though no formal park status exists for them. This is so because most alpine areas in

the province will not be used for resource development and therefore no roads will be built into them. Consequently, the public will not have convenient vehicular access to most alpine locations in the province.

Where roads do exist in, or close to, alpine areas, the protection of wilderness values and limitations on excessive public use will depend, to a large extent, on how these access routes are managed. Where necessary, road-use limits may be imposed, or the roads may be closed altogether. But it is not rational, or necessary, to automatically restrict vehicles from all alpine areas in the province.

Management plans are the necessary first step in any decision making process. Such plans will be developed by the Ministry to deal with all sensitive alpine areas. In this way the various demands on alpine regions throughout the province will be accommodated.

Answers for *ForesTalk* Crossword (see page 9)



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PHOTO JOHN W. THOMSON



Forestalk Interviews

Dave O'Connor

by Peter Grant

Now in his third term as president of the Truck Loggers Association (TLA), Dave O'Connor speaks for the home-grown businessmen in the forest industry.

The TLA's more than three hundred members consist of small and medium-sized timber holders, logging contractors and mill owners. Together these independents handle about 40 per cent of the annual cut in B.C.'s coastal forests, and employ several thousand people. While some TLA members hold cutting rights in the form of Forest Licences, the logging contractor members also cut large volumes of timber for the province's ten principal forest companies, especially in the remote areas of the major Tree Farm Licences.

Dave O'Connor grew up in the logging and fishing communities around the mid-coast: Port Hardy, Alert Bay and Kingcome Inlet. As a boy he dragged kelp from the water to help nourish the family vegetable garden and started his logging career at age 13 during his summer holidays. Today he owns a commercial fishing boat and runs (together with his brother Ken) two good-sized contracting companies — O'Connor Logging and Kamdo Logging.

The companies' head office at Port Hardy on Vancouver Island is well off the beaten track, but Dave O'Connor's views on the forest industry are anything but isolated. It's his job to promote the objectives of the 36-year old Truck Loggers Association, a monitoring body whose mandate includes a commitment to better forest management and an improved forest industry. In recent months, Dave O'Connor and the TLA have been especially busy.

FORESTALK: We understand you've been quite involved with the new Forest Act. What have you been doing?

O'CONNOR: This is an important time and it is unfortunate that more British Columbians don't realize how vital it is to their future. We've only had our new Forest Act since last summer and we probably won't have another one for another 65 years. The old act had to be rescinded and the new act proclaimed, section by section. It's imperative that the act and its regulations be put in place and administered properly.

We're firm believers that the best economy is one with a mix of small, medium and large companies. We've requested — or insisted — that the government take some corrective measures to assist the smaller companies.

FORESTALK: What do independent loggers want from the new act?

O'CONNOR: Some contractors have several million dollars invested in the industry; they're no longer jack-rabbits. They want to be recognized and have some security of tenure or contract — the same as the Forest Licence holder now has under the new act, and the Tree Farm Licence holder, who's always had a 21-year guarantee. If it's good business for the large companies to have security of tenure, then surely it's good business for the small ones as well.

"We're willing to represent anybody in the industry, from logging to manufacturing, except the multi-nationals."

FORESTALK: How large is the average member company of the TLA?

O'CONNOR: That's a hard question to answer. We have people cutting 15 or 20 thousand cunits a year, and some who cut three or four hundred thousand cunits. We have member companies like Doman and Whonock Industries (there's nothing small about them), we have mill men like Raven Lumber and, of course, we have contract loggers. We're willing to represent anybody in the industry, from logging to manufacturing, except the multi-nationals. We don't represent them.

FORESTALK: Some of your members are contractors like yourself. Will you explain how contracting works?

O'CONNOR: We only have access to timber held by companies which have Tree Farm Licences and/or Forest Licences. We bid with other contractors on a piece of timber that's to be logged.

A contractor can get a contract to build the roads; then he does a separate contract on his logging, which can include all the phases: falling, bucking, yarding, loading, hauling, dumping and booming, as well as running the camp. That kind of contract is called stump-to-dump. A phase contract is just for one part of the job, such as falling, loading or hauling. Stump-to-dump contracts are more common.

FORESTALK: You said contractors want security. Don't the major companies have to contract out a certain percentage of their annual cut to smaller logging firms?

O'CONNOR: In the first 15 Tree Farm Licences there was only a 30 per cent clause for contracting, and some of them had no contracting clause. The new Forest Act now requires a 50 per cent contracting clause in every Tree Farm Licence and in most Forest Licences. But we also needed the security of longer term contracts to support our investments. We now have this with the new act.

FORESTALK: That must mean more business for you.

O'CONNOR: It will mean an increase of some 600,000 cunits a year being made available to contractors. There's definitely going to be more opportunity for contracting. These opportunities would increase again if we had access to our 50 per cent share of the timber we believe the majors aren't cutting. In fact, we figure their undercut would run nine good sawmills. That's quite a potential for new jobs.

"The majors have a surplus of logs far greater than their plants require."

FORESTALK: What do you mean by 'undercut'?

O'CONNOR: Cutting less timber than their licences allow, or less than their stated annual allowable cut. From our examination of the forestry

records, we estimate that the 10 Tree Farm Licence holders have together undercut an average of 947,262 cunits a year for the six-year period ending in 1977. That's more than 10 per cent of their combined allowable annual cut. They're not performing on their timber.

As well, the inventories for some Tree Farm Licences are very old. Stands that were classified as scrub 20 or 25 years ago are no longer scrub, but good merchantable timber. But they're not calculated in the present inventories. If they're reassessed, the allowable annual cut could be one-and-a-half or two times what it is today.

FORESTALK: You would like more of this timber to be made available to independents?

O'CONNOR: The majors have a surplus of logs far greater than their



plants require, but independents have no access to Tree Farm Licence timber that isn't being used by the licensee. This is a complaint that we've been very vocal about. Independent sawmills without adequate log supplies need these logs. They should have fair access to them.

FORESTALK: Doesn't the new Forest Act say that if a company doesn't cut a minimum percentage of its allowable annual cut, this unused timber will be re-allocated?

O'CONNOR: It's not clear yet. The Minister has stated that there will be some correction, but it's ambiguous. If they're cutting that wood but not using it in their plants — if they're using it to control the log market — we don't think that qualifies. The government must insist that logs be re-directed to their best end-use.

The original purpose of a Tree Farm Licence — and it's still sup-

posedly the conception — was to supply a sustained yield for the company's plant capacity at the time of granting. We're suggesting that the allowable annual cut be set at what's adequate for the company's plant needs.

FORESTALK: And how would you re-allocate the unused timber?

O'CONNOR: The surplus in Tree Farm Licences should be taken out of the allowable annual cut and credited to the Crown. Then somewhere down the line this timber should be divided up: maybe a third of it each to Forest Licence holders and small, independent logging businesses, and the other third to create a log supply, an open marketplace, for sawmillers with little or no access to wood.

FORESTALK: The small business section of the Forest Act provides for a third type of tenure in addition to Tree Farm and Forest Licences. Are you pleased with this set-up?

O'CONNOR: It will give us another kind of access to timber. But there's no security of tenure in that part of the act; it's for a three-year term, and there'll be a maximum amount of timber allocated.

We're quite nervous about this section. It's brand new; the regulations aren't too specific and proper guidelines are yet to be seen. No actual timber areas have been allocated to small loggers, and many points still need to be thrashed out in order to provide timber for independent sawmillers.

FORESTALK: Recently, some logging operations have been forced to shut down because of damage to salmon spawning grounds. Is this kind of conflict between fishing and forestry going to continue, or can the two industries work side-by-side?

O'CONNOR: Aside from the potential of hydro-electric power, the two main things we have going for us in B.C. are fishing and logging. As well as a huge land base, we have more water courses on the coast of B.C. that lend themselves to raising salmon than any country in the world. So I'm really gung-ho on multiple-use.

Unfortunately we have two different governments running these industries in B.C. — the Federal Department of Fisheries and the Provincial Ministry of Forests. It's never worked; it still doesn't work; and unless we get rid of our jealousies and

sit down together to work out coherent guidelines to Bill 38 (the new federal fisheries act) we'll be in the same mess 10 years from now.

FORESTALK: How much of a threat does logging pose to fish habitats?

O'CONNOR: There's been some damage in the past to fish streams, but in my opinion we've corrected these practices. For instance, we don't fall trees into fish streams or yard logs across them where they will damage the spawning beds. There will always be some minor damage for a short period, but this can be covered in other ways to protect the value of the fish.

FORESTALK: The federal fisheries act gives fisheries officers wide powers to protect these spawning areas. Do you support those powers?

O'CONNOR: They may be necessary in principle for very severe cases, but otherwise I totally disagree — there are no proper guidelines which are site-specific to different areas. As it is, the act has the power to cripple the forest industry, or any other industry.

FORESTALK: So how can these conflicts be avoided?

O'CONNOR: The fisheries people should study an area before some logging company gets involved with several million dollars and hundreds of employees. Then they should thrash out the economics of it with

the fish, he's got fishermen howling to fish them all out. When he sees a little bit of a foul-up in a logging operation, he gets super-contentious about it. As I see it, their biggest single problem is the lack of adequate funds to manage their resource properly. Overall, a lot more tax money in Canada must be returned to our renewable resources — fishing as well as logging.

FORESTALK: Looking ahead, what role do you see the small logger playing in the forest industry?

O'CONNOR: The future success of the industry will hinge more and more on the small, specialist logger who goes into remote areas, knows how to improvise, and removes wood at a cost that will give him a decent profit and still allow the manufacturing side to remain competitive internationally.



PHOTO: JOHN W. THOMPSON

"There's been some damage in the past to fish streams, but we've corrected these practices."

the provincial government. If it's decided that it's a very productive fish stream, that parts of the area are sensitive and that the best value is in the fish, then I say leave the trees and let the fish prevail. But in most cases both logging and fishing can be accommodated through careful planning.

FORESTALK: Don't fisheries officers conduct studies of spawning grounds?

O'CONNOR: Fisheries has a lot of good people, but they feel strapped. The average person doesn't realize what a horrendous job it is for a field officer in fisheries to monitor the fish stock he's managing so that he can perpetuate a return of fish. On top of this responsibility as custodian of

In the coastal part of British Columbia we've been logging all our good stands, all our big valleys, all our best old-growth wood, and we've been leaving little bits and pieces — what you'd call the guts and feathers — around the coast where no major company could log economically. Somewhere down the road that's what we're going to have left.

FORESTALK: It sounds like you see hard times ahead.

O'CONNOR: If we don't start bringing those small patches on-stream and slowing down on the good areas, in 10 or 15 years the forest industry on the coast is going to look pretty sick.

We also have a lot of timber in the mid-coast and north coast areas. The quality is not there, but there's a lot of good fibre. With modern methods and technology there's a lot of

mileage and money in that wood. But for the present there has to be some mix. Any independent company has to have a reasonable mix of south coast wood and mid or north coast wood to make a go of it, because the further north you go, the wood is more decadent and of lower quality. That drives up the cost of logging and manufacturing, although improved technology may eventually help to correct this.

"Over the years, independent contractors have smarted over the lack of recognition for what they've done."

FORESTALK: What kind of response do you get from the major companies?

O'CONNOR: They probably don't like some of the things we've been successful in talking to the government about. I'm told that some of the majors are taking a second look at the independent logging contractor. They're beginning to think that maybe there's a place for him. Over the years, independent contractors have smarted over the lack of recognition for what they've done. They do a good job at a fixed price for a one-year term. Some of the majors, with all the beautiful fibre they control, haven't been as successful as much smaller but more efficient manufacturers.

But we're certainly not bad-mouthing the majors; nor are we bad-mouthing the government.

FORESTALK: What is the TLA's relationship with government?

O'CONNOR: Good government is only a reflection of the requests of the people. It's unfortunate that the people don't treat government like a marriage. If a man doesn't tell his wife what's wrong in the marriage, or vice versa, each partner can only assume that he or she is doing a good job.

It's taken our association, and a few other people, to assist the government in again being the custodian of the public forests. I think they're well aware of the facts now. We're getting a good response, and I believe there are people in government who are also concerned that all British Columbians continue to prosper from the returns of our forests. **U**

LOGGERS, HIGHBALLERS AND THE GREEN CHAIN GANG

Of the 85,000 British Columbians directly employed in the forest industry, close to 22,000 are involved in harvesting timber. Another 50,000 people work in mills processing the timber into finished lumber, plywood and pulp products. But such statistics don't begin to tell the whole story of B.C.'s woods workers.

by Ken Bernsohn

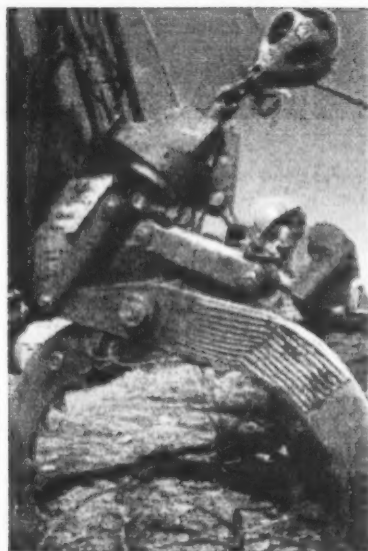
This is the industry the province depends on," says Tage Mogensen, financial secretary of an IWA local in Prince George. "So even if you're only piling lumber, what you do is important."

This pride in the forest industry has been around B.C. for as long as logging. At the turn of the century, when shops on Cordova Street in Vancouver were jammed with spiked logging boots, dozens of different styles of axes, blanket coats and screwjacks for moving logs that had fallen where they shouldn't have, the men on the sidewalk moved with a self-confidence, a swing that was noticeably different from the typical gait of office workers or male skimmers.

These men talked in a language all their own: of whistle punks, of spar trees, of chokermen who put loops of wire cable around logs to be hauled out by a steam donkey; of skid roads, of gypses, or landings which often weren't even on land but were spots of dirt or water where logs were sorted and assembled for shipment.

Over the years the language became more complex, along with the jobs, but even as late as the middle of this century a man could still do a little of everything. "I felled trees a bit, hauled to the landing some, built a lot of plank roads, and worked in the mill," says John Hemming, speaking of the 1930s and 1940s at Sinclair Mills, 60 miles east of Prince George. "We had a lot of spirit back then. No TV to entertain ourselves. We built a ski run, had a debating society and a real sense of community. Instead of the big mills you see today, there were lots of gypso outfits which would cut some trees, then turn them into lumber using a saw run by a jacked-up Ford. We did everything back then."





But the traditional image of woodsmen, as idealized by the 1946 Canadian postage stamp showing B.C. loggers using chain saws with hand grips like motorcycle handle-bars, is a thing of the past. The world of logging and milling has changed. Today, mills cost millions of dollars and most logging equipment relies on hydraulics and solid-state electronics instead of muscle power. Many now-standard jobs in the woods and mills were unheard of a generation, or even a decade, ago. What are today's woods workers in B.C. really like?

Any generalization is automatically wrong. The loggers are different from the mill men. The workers on the coast lead a different life from those in the interior. And the people themselves are as individual as their fingerprints.

At Crown Zellerbach's Ladysmith operation on Vancouver Island, for example, people have been working at the same place for up to 35 years.

Industry is for workers. Companies which are more successful at recruiting good workers have a definite edge over those that aren't.

The jobs these men (and a small but growing number of women) do vary throughout the province as much as the Coast Mountains differ from the moose bogs in the north. Still, the end objective is always the same: to get the trees out of the woods and processed into lumber, plywood or pulp.

Typically, it all begins with the faller who cuts down the tree with a power saw. Then he'll either clean off the limbs and cut the tree into lengths, or else that will be the specialized job of the bucket. In some interior locations trees are harvested by various long-armed machines which snip trees at the base, strip them of their limbs and cut them to length. These machines move through a stand of lodgepole pine like giant harvesters reaping a field of asparagus.



Getting the timber from forest to market requires both machine power and muscle power. The gaping jaw of a grapple loader (top) can get a bite on the heaviest of felled trees to drag it into position for loading, but it takes a well-trained crew to make sure the job gets done right. The vanguard of forest workers are the fallers (above) who take great pride in their difficult and potentially dangerous work.

"We have whole families: brothers, sons, nephews," says Ron Kelly. "And it's been that way since the operation started in 1938. We like it here." But in the interior, one of the things people like most about the industry is the opportunity to finally tell off the boss and get another job. Several mills in the north have over one hundred per cent turnover per year. A typical worker moves every three to five years. According to Van Scofield of the Council of Forest Industries Northern Interior Lumber Sector, "The real competition in the forest in-



Hauling the felled trees out of the woods has always been a test of man against topography. Machines and hauling techniques have to suit the terrain. It usually starts with a chokerman attaching a wire cable to the log. The other end of the cable may be attached to a rubber-tired skidder. On the coast the job is often done by mobile steel spars sticking high in the air, spraying their cables in all directions. These are the direct descendants of spar trees, with diesel power replacing the steam of donkey engines.

At other coastal operations pivoting grapple varders send out iron jaws on cables to grab individual logs and pile them on the roadside. Various machines are used to pick the logs from the piles and load them onto waiting trucks. Some of these giant carriers can pack 70 tons of timber at a time, nibbling down logging roads that would be the ruin of conventional vehicles.

Again on the coast, the logs usually

wind up at sorts where they are arranged by size and species for transport by truck or barge to various mills. Dry land sorts resembling parking lots, where massive log picking machines race from log pile to log pile, are slowly replacing the use of lakes, bays and inlets for sorting by the perpetually swaying and bobbing dozer boats. In the interior, logs are commonly trucked directly to mills where they are sorted and bucked before going through the saws. If a number of tree species are involved, these may be sorted in the woods before being trucked to the appropriate mills.

Woods workers are a proud bunch, but strangely modest when they talk about themselves. It is their fellow workers they boast about. At a landing north of Fort St. James, 50 miles north of the exact middle of the province, a truck driver talks about the man loading his truck (after scotching at his own problems of driving hell bent for leather on an ice road): "Independent truckers get paid on the basis of



In coastal operations, once the fallers have done their work, pivoting grapple varders send out their iron jaws on cables to grab individual logs and pile them on the roadside (left). In the interior of the province, tree harvesting is often done by machines such as a feller buncher (top) which snip off trees at the base, strip them of their limbs, and even cut them to length.

The jobs that B.C.'s woods workers do vary throughout the province as much as the Coast Mountains differ from the moose bogs in the north. "This is the industry the province depends on," says one forest union official, "so even if you're only piling lumber, what you do is important."



Once the trees have been felled and piled, a variety of machines are used to pick the logs from the piles and load them onto waiting trucks (top). Some of these giant carriers can pack 70 tons of timber at a time, hauling down logging roads that would be ruin of conventional vehicles. On the coast, the logs are trucked to either dry land or water sorts where they are sorted out for shipping to various mills. A familiar sight in water sorting operations is the perpetually steaming and bobbing dozer boat (above).

how much timber you haul, and that loader is the man who can make or break you. Look at him work. If there's more than an inch difference between the butt ends and the back of that truck's cab, I'll buy you a bottle. He's a man who knows what he's about."

At the mill there are even more variations in procedures than there are in the woods.

In the interior, the mill sequence often begins with the logs being unloaded by a loader with a claw like a lobster's — but an all-steel lobster with a claw big enough to lift 60 tons. The logs are stored and brought to the mill as needed. At some modern mills the next step consists of a Chip-N-Saw controlled by a log scanner and a computer. This does most of the work of figuring out how to get the most lumber from small logs, then cuts them accordingly. At modern mills automation has reached the point where some men spend the day waiting for a light to turn red, telling them something has gone wrong. Others may look over a partially finished board before pressing one of two buttons to send the wood in one direction or another. At older mills, however, the logs go to a sawyer who figures out how to make the best use of them.

John Stinner is a scrag sawyer in

Prince George. A "scrag" was originally a stunted or thin tree; now the scrag saw is where all the small logs get worked on. Every eight seconds for seven hours and ten minutes a day John evaluates a log, adjusts the saw as necessary, and puts the log in its best position.

"If it's curved like a banana, and you let it go through on its side, the ends get cut off. Flip it so it rides through the saw like a canoe and there's a lot less waste. You really have to keep your eyes open," John says. "After awhile it becomes automatic, like typing. Sometimes I watch the counter and keep track of my mistakes, trying to beat my personal record for the fewest mistakes in a day."

From the head rig, or first saw on the line, the rough planks may be re-sawn into thinner boards, or they may go directly to the edger which trims the sides so they look like boards instead of sections of a cucumber sliced lengthwise.

In the older mills, instead of being sorted and stacked automatically, the lumber travels down the line for a final hand sorting. This is done by workers on the "green chain," so named because originally it was here that green lumber was sorted before being stacked to dry through the summer.

Tom Reakes spends his day watchmarks on boards, pulling off those specially marked for the piles he builds.

"The pay is good," he says. "And it keeps you in shape."

"But don't you find it boring?" a visitor asks.

Tom looks at the company's industrial relations person accompanying the visitor. The management representative comments that working on the green chain is not exactly a picnic. "But it sorts out those who work and those who don't," he adds. "The good ones eventually get to bid up for better jobs."

"It's mind-numbing," Tom concedes. "It's the same thing all the time with no time to think about it."

When he's off work, however, Tom's life is anything but mind-numbing. Among a number of activities, he referees junior and senior soccer and throws in a bit of rugby refereeing on the side. "In many ways it's a good life," he says.

But the days of the green chain may be numbered. Across the province mills continue to modernize, doing away with the need for that kind of work.

"I'll tell you about technology," one mill man says. "Right now there are mills turning out a million board feet a day, but using fewer men than used to work at some of the old mills. That means what you do really counts. A new mill being built in Prince George will get as much as 30 per cent more two-by-fours out of the same number of logs. The saws won't waste as much wood and the mill will use the same number of men they do now. But we'll all be moving up, doing new jobs."

Workers in the forest industry often are responsible for operating expensive, complex machinery, and the work they do adds considerable value to the products they turn out. Given their important role in the industry, it may come as a surprise to some that in many areas of the province the average woods worker has no more than a grade nine level of education. Tage Mogensen of the IWA explains. "If you're young, you expect to work the year through and the prospect of \$20,000 looks awfully nice. So a lot of young men drop out of school. By the time they're in their mid-twenties they have a camper in the driveway,

two snowmobiles, and a life style that's hard to give up."

It is also a life that a lot of workers want to improve on. In most logging communities adult education courses are packed and correspondence courses are popular. Bring a camera in to almost any mill lunchroom and a learned discussion of fixed versus zoom telephoto lenses for wildlife

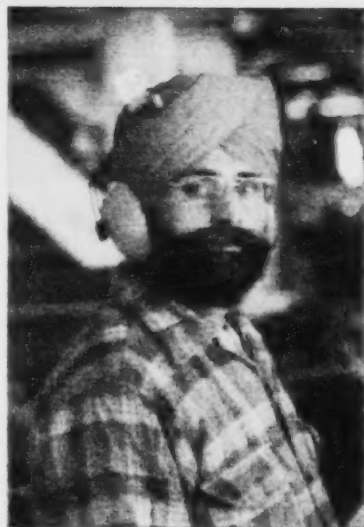


photography will last through lunch. Gary Schlesinger, who works at a plywood plant, has a printing press in the basement. Larry Rewakowsky will be glad to discuss perforation variations on Austrian stamps from 1891. In Hope, a chokerman listens to Mozart; on Vancouver Island an edger operator practices Chopin; a sawyer in Powell River is an international archery champion.

When it comes to the outdoors, if woods workers have one thing in common, it is their appreciation of the forests.

Srag sawyer John Stinner says: "I do a bit of fishing, some hunting and a lot of outdoor photography." His wife adds: "He'll use any excuse to just wander around in the bush. He just likes looking at it."

This feeling of attachment towards the environment that provides them with their livelihood runs deep, but most woods workers don't see their jobs as merely something to be endured in order to finance weekend outings. While the government says what timber can be cut, where, when and by whom, and while industry provides the machinery, management and money to turn timber licences into lumber and profits, it is the workers who make it happen. That's why what they do is important, and they all know it. □



Modern mills are highly mechanized, but many still rely on the back-breaking labour of the people who work on the green chain, pulling the processed lumber from conveyor systems and stacking it in the appropriate piles.

Workers inside the mills are responsible for operating expensive, complex machinery, and the work they do adds considerable value to the products they turn out.

In the final analysis, it is the workers who turn the wheels of the forest industry.



The Sweep of Fall

A photo essay by
Gary and Judy Green

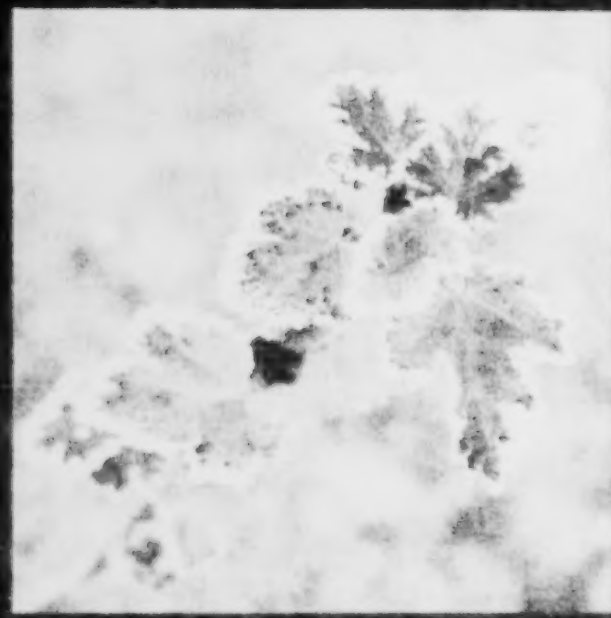
Summer draws to a close. There is a subtle chill in the air. Each passing day is a little shorter as the sun sinks lower on the horizon. On the trees, summer green transforms into a blaze of autumnal orange, red and yellow.

Fall sweeps into the province from east to west. Its effect is felt at higher elevations in the interior. Here the mountains are ringed with the gold of the western larch, the only cone-bearing tree to lose its needles. Autumn's changes next work their way down into the valleys, where groves of aspen reflect bold yellows against the backdrop of clear blue skies, a scene augmented by splashes of red birch.

The stillness of the autumn air is broken by the eerie bugle call of a bull elk announcing his challenge. Overhead a crescendo of honking geese is heard as they wing their way southward. A bull moose crashes through the undergrowth in search of a mate. Beavers read the signs of fall, storing their winter food supplies. All around is the ritual of autumn.

Last to feel the sweep of fall is the mild west coast. In late October, as streams are swollen with spawning salmon, the rain forests are dressed in the orange and red of vine maples. Abundant rainfall encourages the prolific growth of mushrooms and fungi. Moisture freezes during the cold nights to form a mantle of delicate ice crystals on the forest growth. These intricate displays of hoar frost disappear quickly in the morning sun.

The sweep of autumn concludes as the last leaves fall to the ground, exposing the skeletal frames of the trees which must wait the winter through for the warm touch of spring.



PACIFIC REPORT

edited by Russell Wodell

It has to be considered an important occasion whenever industry and business leaders, academics, environmentalists, unionists, journalists and public servants get together to talk over the central concerns of forest land use in B.C. Just such an event took place earlier this year on the CBC Vancouver television program Pacific Report.

What transpired was a free-wheeling discussion covering the major issues facing forest managers and forest users in B.C. The following condensed version of the proceedings provides a rare insight into the thoughts and feelings of many of the leading figures involved in making or influencing decisions on forest planning in the province.

THE FOREST LAND BASE

JACK WALTERS (Director, UBC Research Forest): There's no way we've done an adequate job to ensure the future of the main resources of this province. We're talking about forest legislation, and I'm far less optimistic than many people here. The history of forest legislation is certainly not one of advancing forest management. Right now we're spending about 2.5 per cent of our provincial budget on forestry — including protection of the resource, administration, sales, scaling of royalties, collection of taxes, and so on — while less than half of one per cent is spent on reforestation. The Canadian public has no concept whatsoever of this, and we have not done the right job of making sure they do have adequate information.

ED MANKELOW (B.C. Wildlife Federation): Now, reforestation to a lot of people means putting trees on a slope, but basically reforestation can mean jobs. The two million acres that

are not sufficiently restocked right now could mean twelve thousand jobs — if they had been restocked when they were cut.

HAMISH KIMMINS (UBC Forest Ecologist): A forest is not something like a mine, where you go and dig the stuff up and ship it away, but something that must be cultivated, tended and husbanded. Historically the initial period of forestry, wherever it has developed, has resembled mining more than husbandry, and this period invariably has been followed by a period of failure in which an impending shortage grows ever nearer and people get more and more worried. Finally they start applying management regulations which recognize the inherent nature of the resource, and which result in

successful sustained production from the forest. We're going exactly the same way in British Columbia as the Chinese went, as the Greeks and Romans went, as the Europeans went; everywhere in the world this has followed the same pattern. Our history is a little bit shorter because we have their experience to draw on, but that is the only difference.

I think one of the problems in British Columbia is that people are constantly told that forests are renewable resources. What they



forget is that forests are not necessarily renewable resources. What the public must realize is that although the forests up north and on the mountain tops have a lot of trees in them, they do not in fact produce wood very rapidly. If we take away those sites where wood is produced most rapidly — in the valley bottoms and the sites in better climates — and retreat to the north and to the mountaintops, we will not be able to provide the capital base for this province that forestry now offers.



JACK TOOVEY (Chief Forester, B.C. Forest Products): The public simply does not see the value of forest land. The facts of forest land management and the myth of abundance are totally misconstrued. It is simply a matter of how much we can afford and how much we want to sacrifice. If we want to lower our standard of living drastically, then of course we can disregard the forest farm. The problem is that in B.C. we are almost at the unique position of being able, with a little manipulation and management, to eat our cake and have it too. We have excellent forest sites, we have excellent forest species

which are in demand around the world, we have fibres that no one else produces, and that's what keeps our industry as buoyant as it is.

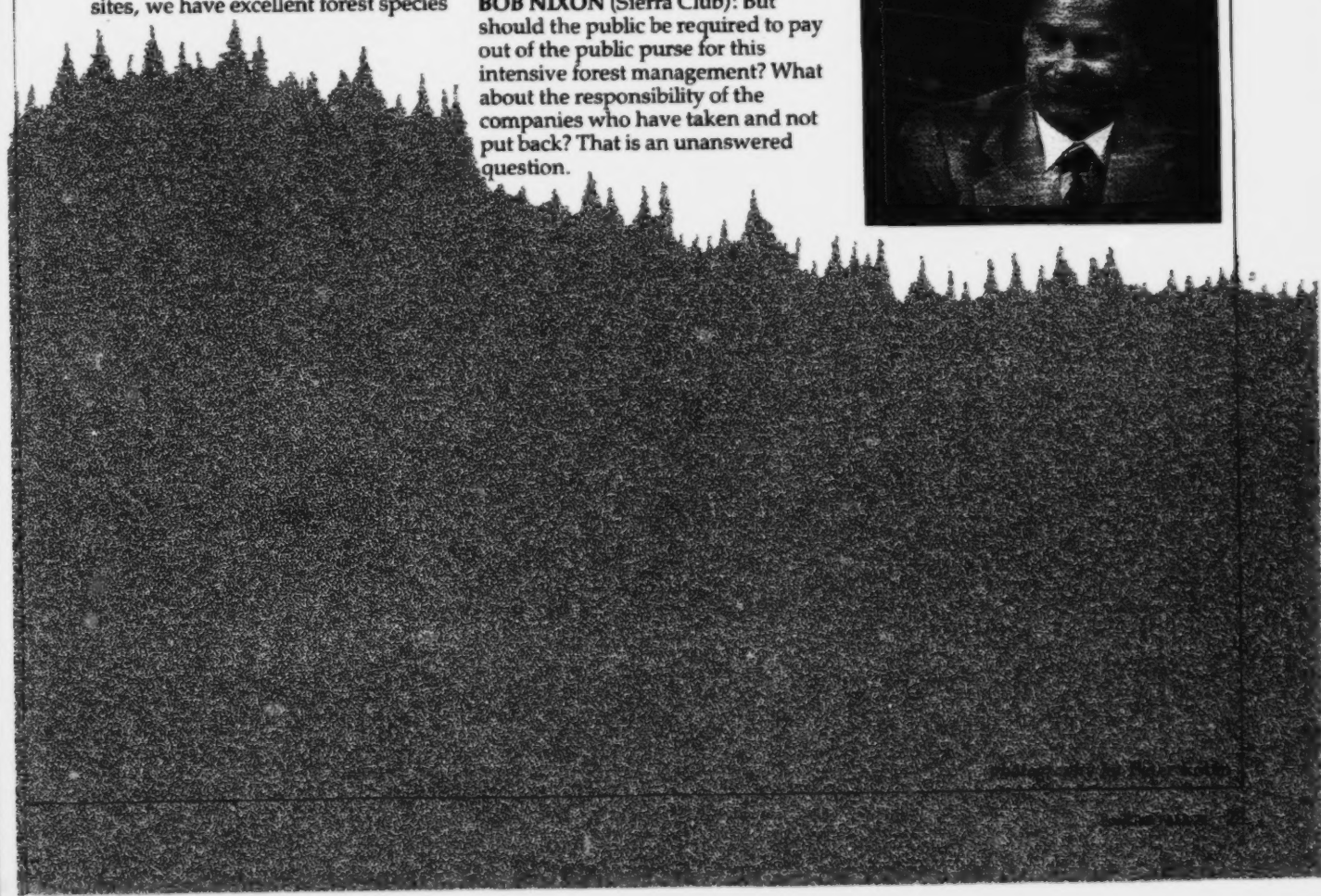
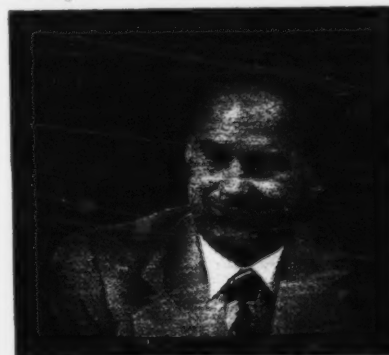
DON LANSKAIL (President, Council of Forest Industries): I don't think we should sit here and write off the north country completely and say that we are never going to go in there and harvest that wood, because some day — say by the year 2000 — the economics will make it advantageous to go in and do that, and the north will develop. But we still will need the benefits of intensive forestry.

"But should the public be required to pay out of the public purse for this intensive forest management? What about the responsibility of the companies who have taken and not put back?"

BOB NIXON (Sierra Club): But should the public be required to pay out of the public purse for this intensive forest management? What about the responsibility of the companies who have taken and not put back? That is an unanswered question.

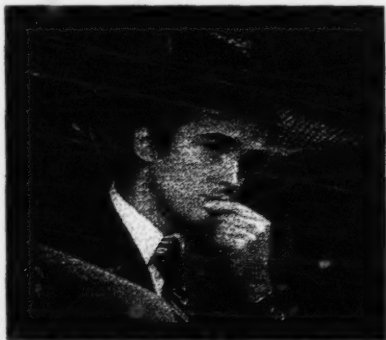
MURRAY LEITH (Pemberton Securities Ltd.): I'd like to deal with that for a minute. Somebody pointed out that the public owns the forest land. That's a choice that the people made a long time ago — "We're going to hold onto the land and rent the trees out to the operators." Anybody who cared to take the time to examine the position of the companies, large, small, and medium in this province over the last 25 years, and had any sense of mathematics at all would understand that the forest industry owners, and lenders to that business, have had a consistently rotten deal.

The people who own most of these companies are people who are members of pension plans, not a bunch of evil old guys who are hoarding the stuff in a closet. That's who owns these companies. They don't have the ability to pay. Sorry to tell you, they can't come up with the money.



PACIFIC REPORT

CLIFF STAINSBY (Canadian Scientific Pollution and Environmental Control Society — SPEC): Agriculture does not return a big dollar; forestry can. But if you look at this in long-term planning aspects, you must recognize that the rest of the world's agriculture output is falling. We have a population of two million, and we can't feed even half of it now. To alienate that farm land in favour of trees would preclude our food options in the future. We're just not going to have outside sources. Of course, the same thing may go for forestry too; the world's forests aren't in great shape.



BILL YOUNG (Chief Forester, Ministry of Forests): Certainly the same thing goes for forestry. Do you know that the forest land base in the world is shrinking by approximately 35 million acres a year? One country that was once 50 per cent forested in memory's time is now three per cent forested. This is a net loss of 35 million acres yearly in spite of all the reforestation projects we hear about in Brazil and elsewhere in the world. We have a massive wood shortage coming which, in turn, makes B.C.'s picture promising if we play our options right.

"We can sit here and point fingers at each other and say we've made mistakes; we can argue about what the land should be used for. But if we don't have any land to argue over, we haven't got a game. The ball game is going to be called, not on account of rain, but on account of no ball park."

HAMISH KIMMINS (UBC Forest Ecologist): Couple that with a world population growth that will see between eight and twelve billion people by the time we harvest the crop we're planting today, and I think we can only agree that this is a fairly serious position. While we certainly do need food, we also need the products of the forest. We need

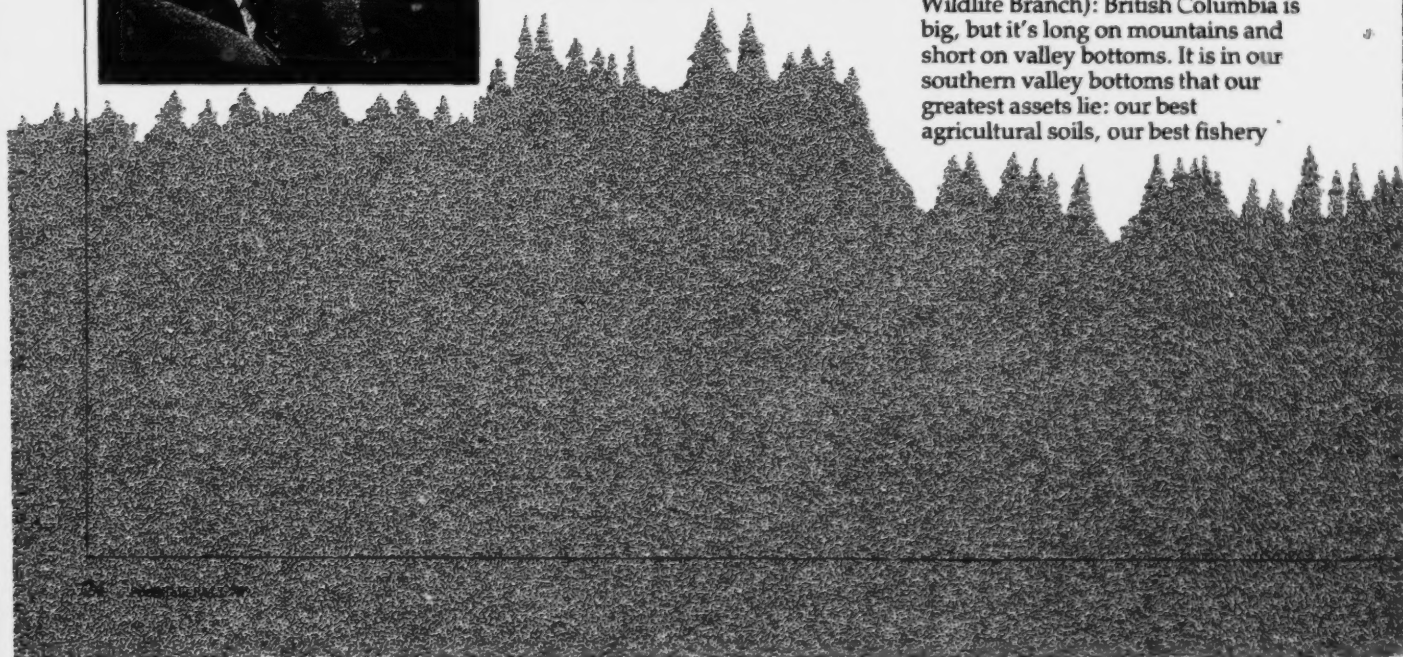
soil protection, fisheries protection, and the wildlife habitat that forests provide. We have to be very careful that we make an appropriate balance between the forest resource and the agricultural resource.

BILL YOUNG (Chief Forester, Ministry of Forests): We have made progress. We haven't made enough progress, we've certainly got to do more, but we have made progress. For instance, in 1956, three million trees a year were planted in this province. Today we have a hundred million trees sown in the nursery for planting, and that will be expanded again this coming year. I'm not saying that's enough, but that progress has been made. We've got a long way to go on seed orchards, but genetically improved seed orchards are now no longer a dream. Today



we are gradually increasing the percentage of genetically improved stock in our reforestation program.

RAY DEMARCHI (Biologist, Fish & Wildlife Branch): British Columbia is big, but it's long on mountains and short on valley bottoms. It is in our southern valley bottoms that our greatest assets lie: our best agricultural soils, our best fishery





streams, the major winter ranges for our big game animals. Lo and behold, the most productive forests in the province are in these same areas. This is also where we put our hydro-electric developments, our railroads, our highways, our towns, and where we're going to expand the agricultural base on a Crown land program. This is precisely the area where we should be investing our money in forestry, wildlife and other renewable resources, but this is the area that is most threatened.

When we talk about tenure to private companies, we should also be looking at tenure to the public. We won't have a land base to argue about if we keep alienating it for other uses. We do a lot of finger-pointing, trying to find out who to put the blame on. I'll take part of the blame: I'm a resource manager; I manage wildlife populations. I manage them with imperfect, incomplete information. As resource managers we have made mistakes. We can sit here and point fingers at each other and say we've made mistakes; we can argue about what the land should be used for. But if we don't have any land to argue over, we haven't got a game. The ball game is going to be called, not on account of rain, but on account of no ball park.

JOCK TOOVEY (Chief Forester, B.C.F.P.): Normally people think of the forest as a gold mine: mine it and leave it. But we're endowed with a resource that can be renewed, can in effect be farmed forever. The concept of farming has to be emphasized to the general public. They are the owners of an enormous farm that has a tremendous potential, but like any farm it develops its own revenue from intensification. A farmer cannot practically ignore reinvesting. The public must recognize the need for reinvesting more money in their farm. We have not done a good job of explaining this.

"You want sex, conflict, or violence. We have all those in forestry but you've not been able to see them."

MIKE HALLERAN (Pacific Report Moderator): Foresters have complained for years that the level of public awareness on these questions is dismally low. As the community becomes more and more urban-oriented, city dwellers tend to forget that natural resources are the only source of new wealth we have. Politicians keep saying that these resources are rich and abundant, and the media have never taken the trouble to check it out.

JACK TOOVEY (Chief Forester, B.C.F.P.): In a range of 60 miles of this Vancouver studio, half the population is living in an urban settlement. These are the people who will tell the politicians what they want. Trees aren't considered; trees don't vote. As a result, the forest industry and forestry in particular have been ignored.

JACK WALTERS (Director, UBC Research Forest): The forest was always there, it was free; that's why the public has ignored it. But there is a joint responsibility to make sure

that the value of this resource is clearly identified on the public behalf. We all stand responsible in some measure if there has been neglect, and I think there has been neglect.

MIKE HALLERAN (Pacific Report): What you're saying is you believe the media have not done an adequate job of reporting the resources consciously?

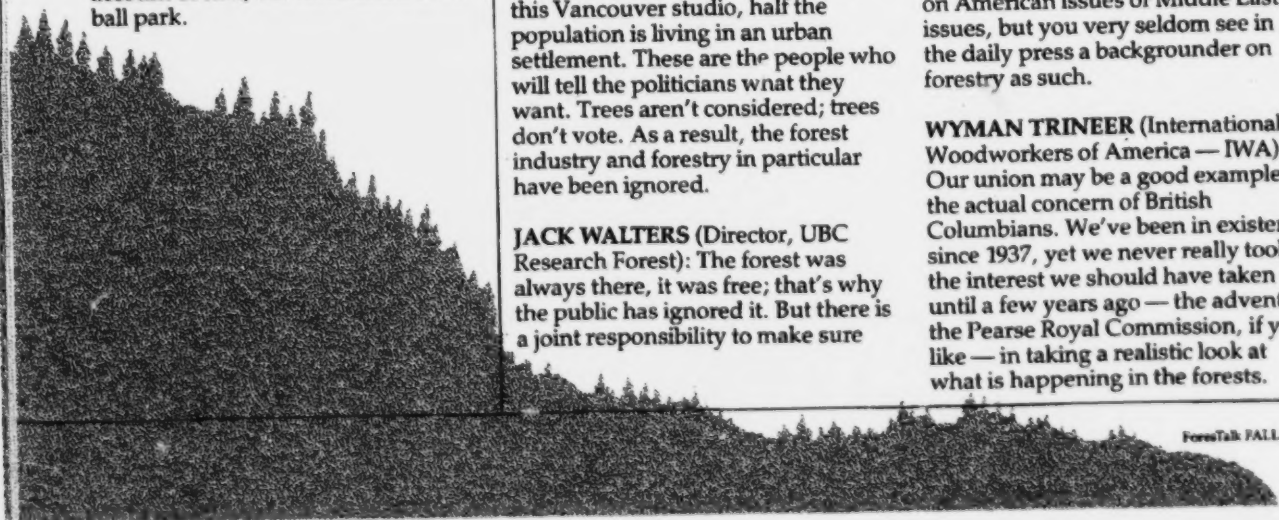
JACK WALTERS (Director, UBC Research Forest): Well, I don't know what the story is. You want sex, conflict, or violence. We have all those in forestry (laughter) but



you've not been able to see them. I think you've got to look a bit harder.

BRIAN MARTIN (Editor, B.C. Lumberman): I would agree totally. I don't think your profession nor my profession has done anywhere near an adequate job. They operate on crisis news. They'll cover forestry when there's a strike or a conflict, but backgrounders are virtually nonexistent. You see backgrounders on American issues or Middle East issues, but you very seldom see in the daily press a backgrounder on forestry as such.

WYMAN TRINEER (International Woodworkers of America — IWA): Our union may be a good example of the actual concern of British Columbians. We've been in existence since 1937, yet we never really took the interest we should have taken until a few years ago — the advent of the Pearse Royal Commission, if you like — in taking a realistic look at what is happening in the forests.



PACIFIC REPORT

MIKE HALLERAN: (Pacific Report): What made you do it?

WYMAN TRINEER (IWA): Our concern for the forests, our concern for the people we represent, our concern for jobs. Also, we felt that the time has come when, rather than making wild statements off the tops of our heads, we should be using statistics supportable in the light of day before any tribunal in this country.

CLIFF STAINSBY (SPEC): We have found through involvement in the environmental movement that the best way to become informed is through public hearings. Then you get real input; people get involved. But even despite the fact that thousands of people express an interest in having input into the decision of how a particular area is used, for example in the Southern Moresby, we run into a blank wall, Forest Act or not.

MIKE HALLERAN (Pacific Report): Let me suggest to you that what you want to have a public hearing about is a subject which was already decided many, many years ago. South Moresby Island was inventoried and committed to commercial forestry long before you or Mr. Nixon ever heard of it. As a consequence, you and your supporters have now come along, later in the day — I'm not faulting you for this, I'm just describing what I perceive as reality — and said, "We'd like to have some of that for our optics, and we'd like to see our interests catered to and provided for there, but all we see is a determination to go ahead with a logging program that was devised when I was fifteen." Isn't that the central problem?

INTEGRATED MANAGEMENT

BILL YOUNG (Chief Forester, Ministry of Forests): Canada is a forest nation and is the greatest exporter of forest products in the world. And British Columbia is by far the most important forest province in Canada. We have the largest cut of the provinces, we manufacture 70 per cent of the country's lumber, we manufacture over 90 per cent of the country's plywood . . .

GEORGE HEWISON (United Fishermen & Allied Workers): The real question has to be whether or

"What we need to examine is the kind of policy that will give British Columbians a renewable forest resource in addition to the maximum benefits of wildlife, fisheries, and all the other things they need for a good quality of life."

not the forest industry has been managed effectively in the interests of British Columbians and all the user groups. From my point of view and that of the industry I represent, there has not been that kind of integrated use. In fact, there has been a situation that is not in the best interests of the forest industry itself. We can clearly see the term of present logging practices coming to an end in terms of the jobs of woodworkers and their impact on watersheds and fisheries. We have innumerable examples of fish runs that have been wiped out

through the use of estuaries for log storage, or clear cut logging methods which result in landslides. We have examples in the Tsitika-Schoen or the Cowichan-Koksilah estuary. Virtually everywhere we go the traditional runs of fish are being threatened. What we need to examine is the kind of policy that will give British Columbians a renewable forest resource in addition to the maximum benefits of wildlife, fisheries, and all the other things they need for a good quality of life.

JOHN MURRAY (Forester, Crestbrook Forest Industries): Blewett Slope has got 20,000 acres of prime timber on it, but it also has 150 water licenses on it. Two or three years ago John Cuthbert and I were at a meeting of 300 people, and they voted one hundred per cent against the logging. We formed a watershed committee involving the watershed users, the Fish and Wildlife branch, the Ministry of Forests and industry, and we turned the whole thing around. They wanted two guarantees: water quality and water quantity. They were prepared to let us cut the resource, and through the watershed committee we got full approval to harvest, with an assurance that we would protect their water quality and quantity.

JOHN CUTHBERT (Forester, Ministry of Forests): The big challenge today is that the land base is limited. We have a great deal of demands on a very limited land base. We have demands for water, demands for wildlife, and demands for recreation as well as for timber.





The challenge is to coordinate those demands on that one land base. If you make a decision to build a dam, then you're precluding all the other uses of that land base. But you will have increasing demands on the remaining land base. The challenge to foresters is to get together with other resource users and come up with plans which will accommodate the uses and yet ensure that the forest land base maintains its productivity and that other resource values are protected.

BOB NIXON (Sierra Club): We can continue down the road we've gone, and sooner or later the situation will get to the point where jobs are going to be lost, communities will be threatened, and people will say, "We can't afford parks any more, we can't afford wilderness areas, we can't afford fisheries because we have to maintain the logging industry." But we have a choice now. We can go into intensive forestry. We can, if we invest, obtain all of the wood we need to maintain a thriving industry and save our parks, and indeed have a lot of land for wilderness areas. That seems to be the basic crossroads we have right now.

HAMISH KIMMINS (UBC Forest Ecologist): I'm personally very critical of many things that have happened in forestry in British Columbia, and I'm very critical of foresters. But on the other hand, I will leap to their defence, and point out the fact that they're trying to operate an extremely complex, variable system; often without really adequate knowledge and tools with which to do the job. We marvel at the launching of a moon rocket with its enormous electronic and mechanical complexity. However, we know all about the many thousands of rocket components — because we made them. We monitor them all the time with big computers. On the other

"But if we're going to market 'Super, Natural B.C.' we're going to have to make sure that there is some Super, Natural B.C. to see. That in itself is going to require some adjustment to our forest management policies."

hand, we take for granted the management of a forested valley, the biological and geological complexity of which far exceeds that of a moon rocket.

We get mad at foresters because they make mistakes, and yet, where are the giant computers monitoring all aspects of the valley, telling the forester how to alter the course of his management? It's a pretty tough job to manage a forest successfully. It's like a doctor trying to diagnose a patient and treat him without knowing most of the basics of anatomy, physiology and medicine.

MIKE HALLERAN (Pacific Report): Are the sciences of all the disciplines and interests represented here tonight, are those sciences adequately perfected so that we can determine what it is we have to do?

KEN FARQUHARSON (Sigma Resource Consultants Ltd.): I would



suggest that the technical processes to achieve that control are now known. What we have trouble with in B.C. is the political decision-making process. Political power in B.C. has always come through the allocation of Crown resources, and it is that allocation that has pushed us to the limit in terms of the exploitation of our forest resource.

What we have to recognize is that we have to balance things off. For example, this province is now marketing itself as a tourist haven. But if we're going to market "Super, Natural B.C." we're going to have to make sure that there is some Super, Natural B.C. to see. That in itself is going to require some adjustment to our forest management policies.

With some reservations, the technical professions have a good grasp of the resource; they realize that there's an ecological limit to what can be produced. We still have not got that point through to the public and to our politicians. □

ForesTalk wishes to thank CBC Vancouver for permission to use material from the Pacific Report television program, "The Vanishing Forest," and for all assistance provided in the course of preparing this article.

People

Ron Hartill

by Abby Day

Not just anyone could survive the pain of chopping the end off a finger while competing in a loggers' sports competition, and go on to become the world champion an hour later. Ron Hartill did.



Standing nearly six and a half feet tall and weighing in at a muscular 215 pounds, Ron Hartill more than fits the image of a champion logger. And so he should. He has been the world champion of loggers' sports for the past five years, an accomplishment made all the more remarkable by the fact that 11 years ago he really didn't know how to swing an axe. But then taking on new challenges and excelling at them is what Ron Hartill is all about.

"My whole life has been a challenge," Hartill explains. "I used to be a long distance bike rider, and I got to the top in that. I try to get to the top in anything I do. I did it in cycling, I did it in shooting, I think I have done it in timber falling, and now I've done it in logging sports."

"But once you have no more goals, your interest starts to go. This is what I think is happening to me now in logging sports. I don't think I have anything more to win."

Then why does he continue, year after year, to work so hard at defending his title?

"I like to travel," says Hartill with an easy grin. But the strapping 42-year-old holds so many titles for loggers' sports he can't remember them all,

and clearly this success isn't an incidental by-product of his desire to travel. For over a decade now, being the world champion in loggers' sports has been the main thing on his mind.

Hartill's decision to take on this challenge was made 11 years ago when he was still working in the woods of his native New Zealand. A team of New Zealand choppers returning home from a tour of Canada convinced him that this country was a perfect place for him to exercise his drive and talent. The fact that Hartill wasn't a skilled chopper at the time didn't deter him in the least. He spent three months training with an ex-champion chopper, then travelled all the way to Squamish, north of Vancouver, for a loggers' sports competition. Just a budding champion in those days, Hartill earned two second place spots. But he had seen enough of both loggers' sports and B.C. to know what he liked, and the following year, 1969, he and his family moved to this province. Four years later he began his reign as the top man in loggers' sports.

But winning trophies isn't the only thing Hartill does for a living. "When I came to B.C., I looked over the logging industry and could see that the only thing to be was a logger." He is currently employed by Island Fallers, working out of Ntinat Lake on Vancouver Island.

Timber falling is probably the most demanding craft left in the forest industry today, and one in which people can get badly hurt for their mistakes. "It's hazardous. Everything's against it. And you don't have to be a novice to get injured. Once you get tired, you can become accident-prone." Then Hartill goes on to speak with pride of the biggest tree he ever felled. It measured 16 feet at the butt and dropping it required all his skill. "That's where the experience comes in, to be able to fell a tree that size."

Hartill points out that at least one thing hasn't changed between the modern logger and his predecessors: when a man walks into the forest and looks over his tree, he does it as a man alone, dependent on his own hands and eyes. With all the automation in industry today, a logger can still feel a creative individual.

A contemporary logger has no need to learn the fine points of working one end of a cross-cut saw, and chopping expertise is of little importance compared to power saw mastery. Yet it is precisely these traditional skills, now obsolete in his profession, that

Hartill has mastered in his recreation. Hartill, and others like him, are guarantors of a heritage, ensuring that the skills of the old woodsman are not simply relegated to pictures in glossy coffee-table books.

The longest-running annual logging sports competition began in 1934 in Hartill's adopted home of Sooke, a logging and fishing community 35 kilometres west of Victoria. The atmosphere in those days was akin to a family picnic; today's highly competitive events draw more than 10,000 spectators to the annual All Sooke Days. It wasn't until 1969, the year Hartill arrived in B.C., that logging sports officially became organized under the Canadian Loggers' Sports Association (CANLOG). CANLOG was formed to coordinate dates for events, set safety standards and competition rules and to organize insurance for the competitors. This

year, 13 communities in B.C. will host CANLOG shows.

The 12 main events at these shows range from axe throwing to the springboard chop, from chokermen's races to speed chopping. Most of the competitors are woodsmen who come to test their professional skills in the arena.

Hartill competes in 10 of these events, leaving pole climbing and log rolling to those whose physique better suits those sports. The event he finds most taxing is the single hand saw in which, using a seven-foot cross-cut saw, he must cut through a block of wood 20 to 24 inches thick as fast as he can. Difficult as he may find it, Hartill holds a world record for the event: 22.8 seconds on a 20-inch block of white pine.

Each year between May and September Hartill travels to about 20 logging sports competitions

throughout North America, competing for a variety of trophies and championships and for the prize money that goes along with them. He is also invited to a number of loggers' sports exhibitions where he is paid to demonstrate his not inconsiderable skills.

A special competition held each year in Wisconsin is the feature event on the loggers' sports calendar, one in which only the top men in the field dare to compete. This competition is recognized by the logging sports world as the world championship event and it is here that Hartill has been crowned the "World Champion Lumberjack" for the past five years. (The word "lumberjack" is out of place in B.C. where "logger" is considered the correct term for the people who cut timber.)

Hartill's winning style depends largely on his considerable strength and stamina, but perhaps his most important attribute is his ability to concentrate. "It's one of my big assets, my mental outlook. I can cut one thing right off, then totally concentrate on another. This allows me to ignore pain when I compete." And Hartill means this literally as well as figuratively. "One year, I won the world championship one hour after chopping the end off my finger," Hartill recalls. "I just had to ignore the fact that every time I hit the block, blood would spurt down the axe and my pants. But as soon as I was finished, the pain bloody well nearly killed me."

If Ron Hartill is willing to work that hard to meet the challenge of being the best loggers' sports competitor in the world, it's unlikely that he would give up the title without a fight. Even if he says that he has nothing more to win, when he travels to Wisconsin this year in pursuit of his sixth straight world championship, he won't be going there for the scenery — or the prize money. He's very clear about that.

"I don't go to Wisconsin to make two or three thousand dollars. I go there to beat eight or ten guys." **O**



The Raccoon

While many animal species have suffered severely from man's intrusion into what was formerly wilderness terrain, others have shown a remarkable ability to adapt to and even thrive in a man-altered environment. This is especially true of the raccoon. In fact, this nocturnal forest animal followed closely behind man as he pushed northward across the continent in search of new country to settle.

The raccoon's ancestry goes back 30 million years to the Miocene age. It evolved, along with the bear, from a primal race of dogs. Its scientific name is *Procyon lotor*. *Procyon* is from the Greek, meaning "before the dog" (a name also applied to a group of stars rising before the dog-star, so a less literal translation might be "night dog"). The species name *lotor* is Latin for "the washer," and for generations naturalists believed that the raccoon washed all its food before eating it. This misconception probably arose when early white settlers observed the raccoon wading about in ponds and streams, feeling for food with its sensitive paws. A captive raccoon may dunk its food in a water dish, but this so-called washing is probably nothing more than a natural investigative response. The term "raccoon" itself is derived from a shortened form of the Algonquin Indian word *arakunem* meaning "he scratches with his hands."

Today, the raccoon is very much at home in the outskirts of big cities where tree-shaded streets and gardens, plus suburban wood lots, provide an abundance of

raccoon habitats. A highly intelligent animal, the raccoon has learned to open tightly-closed garbage cans in search of food, and of course acts as if fruit trees were planted especially for him.

Most raccoons prefer the country life to city living, however, and they normally are found in wooded areas throughout the southern regions of the province. It is not a widely travelled animal; its home territory covers only roughly one square mile. But this range can be extended if a raccoon is feeding along a stream (the crayfish always seem to be better around the next bend).

Although it does not actually hibernate, the raccoon dens up for the worst part of the winter. Inactivity allows the animal to live on part of its accumulated fat while food supplies are scarce. Its preferred home, or den, is in a partially hollow tree at the forest's edge. If a suitable tree is not available, a stump, log or cave will be used for the inactive winter period. In the milder parts of B. C. raccoons may not den up at all, as sufficient food is usually available throughout the winter months.

The diet of the omniverous raccoon changes with the seasons, to include whatever is available at the time. Crayfish is one of its favorite foods, which it catches by reaching under



The responsibility for raising new generations of raccoons rests almost entirely with the female. The young are born furred, but blind, and the babies are not weaned until they are four months old. Perhaps the most important lesson the mother raccoon teaches her offspring is the fine art of scurrying up a nearby tree - the usual escape route from danger. A tree is also the preferred home of a raccoon, especially a partially hollow tree located at the forest's edge.

by Enid K. Lemon



rocks in a stream bed. Other prey include insects (often taken on the wing), earthworms, amphibians and fish — chiefly small minnows. Raccoons living along the coast thrive on seafood deposited on the beaches by receding tides. The forepaw of a raccoon can be compared to that of a monkey for its skill and dexterity, allowing a raccoon to be adept even at opening oysters.

In the spring, when the mother raccoon is feeding her litter, her diet consists predominately of animal matter. Besides crayfish, young muskrats, squirrels and the eggs of ground nesting birds fall prey to her hunt. Come summer, the raccoon becomes more of a vegetarian, delighting in the abundance of blueberries, blackberries and countless other forest edibles.

The raccoon's autumn diet, however, is the most critical to its survival. In an effort to acquire a thick layer of fat around its body (including its tail) which will help it endure the cold and food-scarce winter, the raccoon gorges itself on a variety of foods. The nests of hornets, termites and ants are raided for larvae; crickets and grasshoppers are consumed by the pound; the delectable honey combs of the wild honey bee are sought out on tree branches and devoured, along with



PHOTO: SHUT LUNAR

the bees themselves. By late fall the raccoon may have added a good inch of fat on its back, over 50 per cent of which will be shed through the winter.

Responsibility for raising new generations of raccoons rests almost entirely with the female of the species. The role of the polygamous male is restricted to searching out mates early in the year, remaining in a female's den for a one-week to two-week courting period, then moving on in search of another receptive den. The female is left alone through her 63-day gestation period and the young (usually four of them) are born furred, but blind. The babies are not

weaned until they are four months old. During this period, and for some time afterward, the young are taught how to survive in the wild by their very solicitous single parent. Perhaps the most important lesson she teaches her offspring is the fine art of scurrying up a nearby tree — the usual escape route from danger.

The raccoon is a night prowler, and its chief predators are creatures with similar habits. Bobcats and great horned owls are probably its worst natural enemy. Doubtless the cougar and wolf also take their share of aging raccoons, but at certain times in history the raccoon's most dangerous enemy of all has been man.

Ever since the Europeans appeared in North America, raccoon skin coats have been popular. The skins of raccoons were also sometimes used in place of paper currency. In 1788 the short-lived, breakaway State of Franklin in eastern Tennessee paid its secretary to the governors an annual salary of 500 raccoon skins. Also from Tennessee was the famous frontiersman, David Crockett, who is always associated with his "coon" skin cap.

With its masked eyes, ringed tail and seemingly casual attitude towards humans, the raccoon may give the impression that it would make a good house pet. While it is true that a young raccoon may make an enjoyable companion, the animal is not altogether trustworthy. Its incredibly sharp claws and teeth can produce nasty tears and scratches, and the adult raccoon can develop an unpredictable temper. It is much better to leave the raccoon in the wild where it forms a fascinating part of forest life. **Q**



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